

**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A score calculation method for calculating a score from an input data including a plurality of attributes in a computer, comprising:

preparing a plurality of prediction models arranged in a hierarchical tree structure in the computer;

calculating, with the prediction model in a first root layer of the hierarchical tree structure, an output value from at least one attribute included in the input data by a calculation unit of the computer;

comparing the output value with a threshold and selecting one of the prediction models in a subsequent layer of the hierarchical tree structure according to a result of the comparison by a selection unit of the computer;

repetitiously executing the output value calculation step and the subsequent comparing and selection step while shifting the layer to a leaf side of the hierarchical tree structure until the prediction model of a final leaf layer of the hierarchical tree structure is reached and selecting one of the prediction models of the final leaf layer;

and

calculating a score from the input data using the selected prediction model of the final leaf layer by the calculation unit, wherein any one of the prediction models

of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and wherein the prediction models of the final leaf layer are scoring models.

2. – 4. (canceled)

5. (previously presented) A score calculation method according to Claim 1, wherein said selection of the prediction model in the subsequent layer is determined according to the output value and a category to which the output value belongs by the selection unit.

6. (previously presented) A score calculation method according to Claim 1, further comprising the step of displaying a number of uses an attribute used in the all layers on a display unit connected to the computer.

7. (previously presented) A score calculation method according to Claim 1, further comprising the step of displaying prediction models used in the layers and output values thereof on a display unit connected to the computer.

8. (currently amended) A score calculation system for calculating a score from an input data including a plurality of attributes, comprising:

calculation means in a computer for processing input data using a plurality of prediction models arranged in a hierarchical tree structure;

selecting means in the computer for selecting one of the prediction models in a subsequent layer of the hierarchical tree structure; and

display means connected to the computer for displaying a score, wherein the calculation means calculates an output value with the prediction model in an N-th layer ( $N \geq 1$ ) from at least one attribute included in the input data,

said selecting means selects one of the prediction models in an  $(N + 1)$ -th layer according to the output value of the prediction model of the N-th layer,

the calculation means and the selecting means repetitiously executing the output value calculation and the  $(N + 1)$ -th layer prediction model selection while incrementing N until the prediction model of a final leaf layer of the hierarchical tree structure is reached and selects one of prediction models of the final leaf layer;

the calculation means calculating a score from the input data using the selected prediction model of the final leaf layer; and  
said display means displays the score output from said final leaf layer prediction model, wherein any one of the prediction models of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and

wherein the prediction models of the final leaf layer are scoring models.

9. (previously presented) A score calculation system according to Claim 8, wherein said calculation means and said selecting means are implemented respectively by different computers.

10. (previously presented) A score calculation system according to Claim 8, calculation means is installed on a plurality of computers for executing respective prediction models.

11. (currently amended) An apparatus comprising a storage medium with a program for calculating a score from an input data including a plurality of attributes stored therein, the program when executed causing a computer to, execute:

preparing a plurality of prediction models arranged in a hierarchical tree structure in the computer;

calculating, with the prediction model in a first layer of the hierarchical tree structure, an output value from at least one attribute included in the input data by a calculation unit of the computer;

comparing the output value with a threshold and selecting one of the prediction models in a subsequent layer of the hierarchical tree structure according to a result of the comparison by a selection unit of the computer;

repetitiously executing the output value calculation step and the subsequent comparing and selection step while shifting the layer to a leaf side of the hierarchical

tree structure until the prediction model of a final leaf layer of the hierarchical tree structure is reached and selecting one of prediction models of the final leaf layer; and calculating a score from the input data using the selected prediction model of the final leaf layer by the calculation unit, wherein any one of the prediction models of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and  
wherein the prediction models of the final leaf layer are scoring models.

12. (previously presented) A score calculation system according to Claim 10, further including:

receiving means for receiving the input data from the other computer via a network; and

sending means for sending the output value to the other computer via the network.

13. (currently amended) The score calculation system according to Claim 8, ~~wherein each of the prediction models of the final leaf layer is a score calculation model for calculating the score from at least one attribute of the input data, and~~

wherein each of the prediction models of leaf layers other than the final leaf layer is an attribute prediction model for predicting a value of other attribute of the input data from at least one attribute of the input data.

14. (previously presented) The score calculation system according to Claim 8, further including:

counting means for counting a usage number of each attribute of the input data used as an input to the prediction models of respective layers; and

importance degree calculation means for calculating an importance degree of each attribute of the input data in accordance with the usage number of the attribute;

wherein the calculation means calculates the output value with the prediction model of the first root layer from the input data and the importance degree of the attribute of the input data.

15. (currently amended) A score calculation method comprising:

preparing a plurality of prediction models arranged in a hierarchical tree structure on a memory unit;

inputting data including at least one parameter with ~~known~~-a known value and at least one parameter with ~~unknown~~-an unknown value by an input unit;

predicting an unknown parameter value of the input data using the prediction model in a first root layer of the hierarchical tree structure;

comparing the predicted parameter value with a threshold to select one of the prediction models in a subsequent layer of the hierarchical tree structure according to a result of the comparison;

repetitiously executing the unknown parameter value prediction and the subsequent layer prediction model selection until the prediction model of a final leaf layer of the hierarchical tree structure is reached;

selecting one of ~~prediction~~ the prediction models of the final leaf layer;

calculating a score from the input data using the selected prediction model of the final leaf layer by a calculation unit; and

displaying the score by an output unit, wherein any one of the prediction models of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and

wherein the prediction models of the final leaf layer are scoring models.

15, 16. (previously presented) The score calculation method according to Claim

wherein the unknown parameter value predicting step further includes:  
obtaining an importance degree of each parameter of the input data;  
multiplying the known parameter value of the input data by the obtained importance degree of the parameter and accumulating the multiplications; and

comparing the accumulation result with a threshold to predict the unknown parameter value according to the comparison result, and

wherein the score calculating step further includes:

multiplying the known parameter value and the predicted parameter value of the input data by respective importance degrees of the parameters and accumulating the multiplications to obtain the score.

17. (previously presented) The score calculation method according to Claim 15, wherein the parameters of the data are attributes of a customer.

18. (currently amended) A score calculation system comprising:

a memory unit for storing a plurality of prediction models arranged in a hierarchical tree structure;

an input unit for inputting data including at least one parameter with ~~known~~ a known value and at least one parameter with ~~unknown~~ an unknown value;

a calculation unit for predicting an unknown parameter value of the input data using the prediction model in a first root layer of the hierarchical tree structure, comparing the predicted parameter value with a threshold to select one of the prediction models in a subsequent layer of the hierarchical tree structure according to a result of the comparison, repetitiously executing the unknown parameter value prediction and the subsequent layer prediction model selection until the prediction model of a final leaf layer of the hierarchical tree structure is reached, selecting one



of prediction models of the final leaf layer, and calculating a score from the input data using the selected prediction model of the final leaf layer; and  
an output unit for displaying the score, wherein any one of the prediction models of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and  
wherein the prediction models of the final leaf layer are scoring models.

19. (previously presented) The score calculator system according to Claim 18,

wherein the calculation unit obtains an importance degree of each parameter of the input data, multiplies the known parameter value of the input data by the obtained importance degree of the parameter, accumulates the multiplications, and compares the accumulation result with a threshold to predict the unknown parameter value according to the comparison result, and

the calculation unit multiplies the known parameter value and the predicted parameter value of the input data by respective importance degrees of the parameters and accumulates the multiplications to obtain the score.

20. (previously presented) The score calculation system according to Claim 18, wherein the parameters of the data are attributes of a customer.

21. (currently amended) A score calculation program including codes executable by a computer, to execute:

- preparing a plurality of prediction models arranged in a hierarchical tree structure on a memory unit;
- inputting data including at least one parameter with known value and at least one parameter with unknown value by an input unit;
- predicting an unknown parameter value of the input data using the prediction model in a first root layer of the hierarchical tree structure;
- comparing the predicted parameter value with a threshold to select one of the prediction models in a subsequent layer of the hierarchical tree structure according to a result of the comparison;
- repetitiously executing the unknown parameter value prediction and the subsequent layer prediction model selection until the prediction model of a final leaf layer of the hierarchical tree structure is reached;
- selecting one of prediction models of the final leaf layer;
- calculating a score from the input data using the selected prediction model of the final leaf layer by a calculation unit; and
- displaying the score by an output unit, wherein any one of the prediction models of any layer other than the final leaf layer is one of a scoring model to calculate a score from attributes of the input data and an attribute prediction model to predict, from attributes of the input data, a value of another attribute, and  
wherein the prediction models of the final leaf layer are scoring models.

22. (previously presented) The score calculation program according to Claim 21,

wherein the unknown parameter value predicting step further includes:  
obtaining an importance degree of each parameter of the input data;  
multiplying the known parameter value of the input data by the obtained importance degree of the parameter and accumulating the multiplications; and  
comparing the accumulation result with a threshold to predict the unknown parameter value according to the comparison result, and

wherein the score calculating step further includes:  
multiplying the known parameter value and the predicted parameter value of the input data by respective importance degrees of the parameters and accumulating the multiplications to obtain the score.

23. (previously presented) The score calculation program according to Claim 21, wherein the parameters of the data are attributes of a customer.